

meeting of the Sanitary Assurance Association, presided over by Sir Joseph Fayrer, eminent members of the two professions which must always occupy the most responsible position in connection with household sanitary matters, the professions of medicine and architecture, bore ample evidence to this fact, and at the same time to the necessity for some organisation by which the benefit of the best advice on such matters may be brought within the reach of the many. At this meeting Mr. Mark H. Judge pointed out that the Association "was the outcome of efforts which had been going on for some months to bring together architects and medical men in connection with the important question of house sanitation," and the names already identified with the Association are a sufficient guarantee that it will be both practical and permanent in its character. Sir Joseph Fayrer rightly stated in his opening address that "there is a terrible absence of all supervision of sanitary arrangements and drainage in many of the houses of the metropolis," and that although the richer classes of the population are able to get that sanitary advice which will enable them to make their houses wholesome, "there is an enormous population left, as regards which such a thing is hardly possible." Saying that he believed the idea was beginning to grow that "sanitation generally will increase the value of life," he continued, "over and over again it has come to my knowledge, and even occurred under my own observation, that families, children and servants, have suffered by the defects of drainage or sewer air—that great enemy to public health. I would venture to offer no opinion as to the nature of the diseases that proceed from sewer air, nor even enter into any discussion on the precise character of the air—the nature of the germs and the character of the poisons that it communicates; but that it does destroy health and induce disease is beyond a doubt. That it is greatly under the control of sanitary law is equally certain, and there are men now who have so studied and comprehended the nature of those laws, that they are able, practically as well as theoretically, to give that assistance and that advice which should render those conditions almost innocuous—in fact it should prevent them altogether."

Dr. Andrew Clark, after stating that he considered the Association "one of the most pressing needs of the present time," added:—"Furthermore I am convinced that if the Association can secure and retain the services of men with the scientific and practical knowledge possessed by Prof. Corfield, and will hold itself free from undertaking the execution of the works which it may suggest, superintend, and from time to time certify as sufficient, it will do important service to the public, and confer much and just credit upon all concerned."

Mr. Edwin Chadwick, the veteran sanitarian, said that "he constantly advised people, from his knowledge, 'Do not take that house unless you have it examined first. If the drains are out of order do not take it till they are put right. That was exactly what this Association had to supply.'"

We are happy to state that the formation of the Association was decided upon, and the following gentlemen were appointed a committee to organise it:—George Aitchison, F.R.I.B.A.; Prof. W. H. Corfield, M.A.,

M.D.; Prof. F. de Chaumont, M.D., F.R.S.; Mark H. Judge, Prof. T. Hayter Lewis, F.S.A.; H. Rutherford, Barrister-at-Law; with Prof. Corfield as Chief Sanitary Officer, and Mr. Judge as Surveyor.

It is surely as necessary to be assured against preventable diseases as it is to be assured against fire, and we see from the preliminary prospectus issued that it is intended to give persons who place their houses on the Assurance Register certificates that their houses are in a satisfactory sanitary condition, and to endorse such certificates from time to time; this latter point is of great importance, as it is only by regular inspection at stated intervals that it is possible to ascertain that all continues to work satisfactorily.

A very important feature is also the proposal to examine and report on the plans of new houses, for there is at present absolutely no control exerted over the sanitary arrangements of new houses in the metropolis.

We have given such prominence to this matter because we believe that the Association will supply a widely-felt want, and will do good not only directly but indirectly too; thus wise builders will take care to have their houses supervised and certified, and will reap their reward in increased facilities for letting; architects will submit their plans for criticism and suggestion; and so the public will in many ways reap a lasting benefit. In this country few new things succeed unless public opinion is ripe for them. We are slow to adopt new ideas; but we have now learnt the importance of preventing disease, we believe that much of our health depends on the perfection of the drainage arrangements of our houses, and we are ready to place them in the hands of an association in which we can have confidence.

HINCKS'S "BRITISH MARINE POLYZOA"

A History of the British Marine Polyzoa. By Thomas Hincks, B.A., F.R.S. (London: J. Van Voorst, 1880.)

THE value to science of Mr. Van Voorst's splendid series of volumes descriptive of the Natural History of the British Islands is scarcely to be overrated. The monographs are all the work of most eminent naturalists, in whom perfect confidence may be placed, and they are sumptuously printed and illustrated with abundance of excellent plates and woodcuts. The thanks of naturalists generally are certainly due to Mr. Van Voorst. The present work is fully equal in merit to its predecessors; it consists of two volumes—one of 600 pages of text, the other containing eighty-three lithographic plates. Mr. Hincks, whose industry is indefatigable, has already contributed to Mr. Van Voorst's series the well-known excellent monograph on the Hydroid Zoophytes. The labour involved in the production of a monograph such as that now under consideration is very great. All the 235 species occurring on the British coast are figured, with one or two exceptions in cases where specimens do not exist for the purpose. All the figures have been drawn by the author himself and beautifully lithographed by Mr. Hollick. Further figures are added taken from various monographs where such are necessary for the elucidation of the subject.

The work commences with an introduction, in which the author, after expressing his obligation to Mr. Busk,

Mr. Norman, Mr. Peach, Dr. McIntosh, Prof. Ray Lankester, and others who have given him valuable aid in his work, gives an account of the structure of the Polyzoa generally, with some details concerning their development, life-history, and distribution. Several pages are devoted to the question of the name of the class concerning which it seems almost hopeless that any unanimity amongst naturalists will be attained. The author adopts J. V. Thompson's term Polyzoa on the ground of priority, and we hope it may prevail in this country, although it is scarcely probable that Continental zoologists will, as the author trusts, "reconsider the grounds on which they have hitherto given their adhesion to Ehrenberg," and give up the term Bryozoa (*Moosthierchen*).

Several pages are devoted to the question of the nature of the "brown bodies," which the author, following Prof. F. A. Smith and from his own extended observations, formerly considered to be essentially concerned in the production of new polypides by germination. He now admits that the evidence at present tallies better with the residuary theory of Nitsche and Joliet, who, as is well known, regard the bodies as merely remains of decayed polypides, but thinks that further investigation on the matter is yet required. An interesting series of woodcuts are given illustrating, as shown in a series of different species, the development of the avicularium from the first rudimentary stages, hardly distinguishable from the ordinary zoecium, up to its most highly specialised bird's head-like form. Most readers are familiar with Mr. Darwin's account of his experiments on the avicularia of Polyzoa made during the voyage of the *Beagle* and published in his Journal. The author after citing these, and those of Mr. Busk and others, expresses himself as inclined to regard the avicularia as "charged with an offensive rather than alimentary function," believing that their vigorous movements and the snapping of their formidable jaws may drive away loafing annelids and other enemies.

Some short account of the embryonic development of the Polyzoa is given, and is illustrated by a coloured plate of larvæ taken from the splendid monograph on the subject by Dr. J. Barrois of Lille. In the matter of classification the author follows Ray Lankester as far as the main sub-classes are concerned, dividing the class according to the characters of the lophophore into the Holobranchiata, or those which have the tentacles in a continuous series, and the Pterobranchiata, in which the lophophore is broken into two distinct arms like those of Brachiopods. The Pterobranchiata include only a single genus, the remarkable Rhabdopleura of Allman. The Holobranchiata are divided, after Nitsche, into the Ectoprocta, in which the anal orifice lies without the lophophore, and the Entoprocta, in which the orifice lies within it. The latter group includes the genera Pedicellina and Loxosoma only, whilst the main mass of the existing Polyzoa come under the Ectoprocta, the marine forms of which form a single order, Gymnolæmata of Allman, which order is divided by the author according to Mr. Busk's well-known system into the sub-orders Cheilostomata, Cyclostomata, and Ctenostomata. The generic terms adopted in the work are however in many instances different from those employed by Mr. Busk and

other former authors, and many familiar species have changed their names, so that the student is somewhat confused. Thus the species hitherto ranged under the genus Leptalia are separated into sections and placed under the author's three genera, Mastigophora, Schizoporella, Schizotheca, and other genera.

As before stated, the number of British species of marine Polyzoa described in the work is 235. Of these 69 have as yet not been found elsewhere, but as the author adds, no inference as to their range can be drawn from this negative fact. For 28 species Shetland is the only British locality, 8 of these not being found elsewhere, whilst the remainder are Arctic forms, with the exception of two, one of which, *Cellaria johnsoni*, ranges as far south as Madeira, and is abundant in the Mediterranean. Some of the British species have an extraordinarily wide range. Thus *Cellaria fistulosa* occurs in the Mediterranean at Madeira, in South Africa, in Scandinavia and North America, in the Indian Ocean, and in Australia and New Zealand. And there are several similar instances of almost world-wide distribution, the species not being deep-sea forms, but such as flourish between tide-marks and in shallow water, though also found at greater depths. The author suggests as a possible explanation of the wideness of range of such species, in addition to migration along coast lines and in profound depths, the agency of currents, floating timber, and ships. There is a very close resemblance between the Polyzoan fauna of the south-west coasts of France and our own, whilst a small group of Polyzoa is common to our shores and those of South Africa; but these are also Mediterranean. The author expects that a flood of light will be thrown on the subject of the distribution of the Polyzoa by the results of the *Challenger* Expedition, when published. It is obvious that in treating of any branch of the marine fauna of a restricted area, such as the British Isles, it will be necessary to make some restriction as to depth in considering questions of distribution. Once the abyssal fauna is reached by the dredge the animals obtained have no longer any special connection with the shores off which they are obtained, but belong to the ocean bottom and are mostly cosmopolitan, or rather Oceanopolitan.

The cordial thanks of zoologists are certainly due to Mr. Hincks for having produced this most useful work. It will be valuable not only to the professed naturalist, but also an entertaining addition to the sea-side libraries of those who work occasionally with the microscope for recreation.

OUR BOOK SHELF

A Popular History of Science. By Rob. Routledge, B.Sc. (London: George Routledge and Sons, 1881.)

IN looking through many of the works on popular science one is inclined to exclaim, "Oh, monstrous! but one half-pennyworth of bread to this intolerable deal of sack." Mr. Routledge's recent volume is fortunately an exception to this rule, for in it we find a clear and concise statement of the development of the main branches of physical science given in a readable form with such an amount of biographical notices as to impart a human interest to the tale. Extracts, too, from the writings of the great workers in science have been judiciously interspersed throughout the text, thus bringing the student into direct communication with the master mind. Numerous illus-